

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-320642

(43)Date of publication of application : 12.12.1997

(51)Int.Cl. H01M 10/46

H01M 2/10

H02J 7/00

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(54) BATTERY PACK

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a battery pack from which faces having common thickness for its fixation are eliminated by forming two types of fitting recessed parts having different standard faces in a charger fitting face of battery packs and fitting battery packs with different thickness in a desk charger and an on-vehicle charger.

SOLUTION: This battery pack is for portable radio equipment chargeable by two kinds of chargers having different fitting method based on the thickness of battery pack and in the charger fitting face of the battery pack, two kinds of recessed parts for fitting are formed. Of recessed parts for fitting in battery packs a, b having different thickness, the recessed part 1 for desk type charger exists at a prescribed position from the back sides 11, 21 of the battery packs a, b and the recessed part 2 for fitting on-vehicle charger exists at a prescribed position from the fitting face of a portable

radio equipment.

LEGAL STATUS [Date of request for examination] 29.05.1996

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number] 2933534

[Date of registration] 28.05.1999

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] The cell pack characterized by having two kinds of crevices for fitting where datum level differs in the battery-charger fitting side of said cell pack in the cell pack for field radios which has the structure which can be charged with two kinds of battery chargers from which the fitting approach differs with the thickness of a cell pack.

[Claim 2] The cell pack according to claim 1 with which said crevice for fitting is characterized by being in the same location from the cell pack tooth back which touches the same location and the same battery charger from body fitting Men of a field radio of the cell pack with which thickness differs.

[Claim 3] The cell pack according to claim 1 or 2 characterized by two kinds of battery chargers being a desk battery charger and a battery charger for mount.

[Claim 4] The cell pack characterized by for the distance from the cell pack tooth back which fits in with the heights for cell pack fitting of a desk battery charger, and touches a battery charger in the cell pack with which thickness dimensions differ fitting in with the 1st equal crevice for battery-charger fitting, and the heights for cell pack fitting of the battery charger for mount, and having the 2nd crevice for battery-charger fitting where the distance from body fitting Men of a field radio of a cell pack is equal.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the cell pack which has the structure which can be charged with two kinds of battery chargers from which the fitting approach differs with thickness about a cell pack.

[0002]

[Description of the Prior Art] The desk battery charger of the structure of being able to charge the cell pack for the conventional field radios according to a field radio fitting condition and a cell pack item condition, and positioning the time of charge in contact with a battery charger at the tooth back of a cell pack, When the battery charger for mount of the structure which can charge the body of a walkie-talkie in the state of fitting, and the body of a walkie-talkie and a battery charger lock is used, Since the field where a thickness dimension is common needed to be established in the tooth back of a cell pack making the cell pack with which thickness differs charge, the limit had been received in the appearance configuration of a cell pack.

[0003] Drawing 5 is the perspective view showing one example of this conventional kind of cell pack, drawing 5 (a) shows the cell pack 30 with a small thickness dimension, and drawing 5 (b) shows the cell pack 40 with a large thickness dimension. The crevice 3 for battery-charger fitting is established in the battery-charger fitting side of these cell packs, and the charge terminal 4 is formed on the same field as the crevice 3 for fitting. Moreover, the tooth back 31 of the cell pack 30 and the tooth back 42 where a thickness dimension is common are established in the tooth back 41 of the cell pack 40.

[0004] Drawing 6 is the sectional view showing one example of the fitting condition of the conventional cell pack and a desk battery charger, and fitting of the cell packs 30 and 40 is carried out to the desk battery-charger case 50. At this time, the cell pack is performing positioning with a desk battery charger by tooth backs 31 and 41, and the tooth back 42 which is a field where the cell pack 30 and a thickness dimension are

common in order to stabilize a fitting condition with the desk battery-charger case 50 is needed for the cell pack 40, and the heights 52 for supporting a tooth back 42, and the crevice 3 for battery-charger fitting and the heights 51 for cell pack fitting which fit in are needed for a battery charger.

[0005] Drawing 7 is the sectional view showing one example of the fitting condition of the conventional cell pack and the battery charger for mount, and fitting of the cell packs 30 and 40 in the condition that the field radio 70 was equipped is carried out. At this time, it has a field radio 70 and structure which the battery-charger case 60 for mount locks.

[0006] Drawing 8 is drawing showing the location of the crevice 3 for battery-charger fitting of the cell packs 30 and 40. The crevice 3 for fitting of the cell pack 30 and the crevice 3 for fitting of the cell pack 40 are both located from a fitting side with a field radio 70 in a fixed location, and are located from the contact surface with heights 52 in a fixed location. This is because the crevice 3 for battery-charger fitting is used in common in fitting of the desk battery-charger case 50 and the battery-charger case 60 for mount, consequently the tooth back 42 where a thickness dimension is common is needed with the electric packs 30 and 40.

[0007]

[Problem(s) to be Solved by the Invention] By the approach of fitting into the desk battery charger 50 and the battery charger 60 for mount the cell packs 30 and 40 for field radios with which the thickness dimensions of the former mentioned above differ, since a cell pack and a battery charger were fixed, the tooth back 42 where the thickness dimension of a cell pack is surely common was needed, and the limit had been received in the appearance configuration.

[0008] In the configuration fitting of the cell pack with which thickness dimensions differ is carried out [configuration] to a desk battery charger and the battery charger for mount, the purpose of this invention abolishes the field where the thickness dimension for fixing a cell pack is common, and is to offer the structure where a limit is not received in an appearance configuration.

[0009]

[Means for Solving the Problem] the crevice for battery-charger fitting of the cell pack with which the cell pack of this invention fits into the heights for cell pack fitting of a desk battery charger, and the heights for cell pack fitting of the battery charger for mount -- common -- not using it -- desk charge -- being dexterous -- the charge for mount -- dexterous -- it was alike, respectively and another crevice for battery-charger fitting is prepared.

[0010] In the cell pack with which thickness dimensions differ, the distance from the cell pack tooth back which fits in with the heights for cell pack fitting of a desk battery charger, and touches a battery charger more specifically fits in with the 1st equal crevice for battery-charger fitting, and the heights for cell pack fitting of the battery

charger for mount, and it has the 2nd crevice for battery-charger fitting where the distance from the body fitting side of a field radio of a cell pack is equal.

[0011] For this reason, the cell pack of this invention can fix a cell pack and a battery charger, without preparing the cell pack thickness dimension common tooth back for fixing a cell pack and a battery charger.

[0012]

[Embodiment of the Invention] Next, the gestalt of operation of this invention is explained to a detail with reference to a drawing.

[0013] Drawing 1 is the perspective view showing one example of the cell pack of this invention. Drawing 1 (a) shows the cell pack 10 with a small thickness dimension, and drawing 1 (b) shows the cell pack 20 with a large thickness dimension. The crevice 1 for desk battery-charger fitting and the crevice 2 for battery-charger fitting for mount are separately established in the battery-charger fitting side of these cell packs, and the charge terminal 4 is formed on the same field as the crevice 1 for desk battery-charger fitting, and the crevice 2 for battery-charger fitting for mount.

[0014] Drawing 2 is the sectional view showing one example of the fitting condition of the cell pack of this invention, and a desk battery charger, and fitting of the cell packs 10 and 20 is carried out to the desk battery-charger case 50. At this time, when the heights 51 for cell pack fitting of a desk battery charger and the crevice 1 for desk battery-charger fitting which is in this distance from the tooth backs 11 and 21 of the cell packs 10 and 20 have structure which carries out a fitting condition and the tooth back 11 of the cell pack 10 and the tooth back 21 of the cell pack 20 touch the desk battery-charger case 50, stability of a positioning and a fitting condition with a desk battery charger is aimed at.

[0015] Drawing 3 is the sectional view showing one example of the fitting condition of the cell pack of this invention, and the battery charger for mount, and fitting of the cell packs 30 and 40 in the condition that the field radio 70 was equipped is carried out. At this time, it has structure which positions in the heights 61 for cell pack fitting of the battery charger for mount, and the fitting side of a field radio 70 to the cell packs 10 and 20 when the fixed crevice 2 for battery-charger fitting for mount fits in, and a field radio 70 and the battery-charger case 60 for mount lock.

[0016] Drawing 4 is drawing showing the location of the desk charge dexterous crevice 1 of the cell packs 10 and 20, and the crevice 2 for battery-charger fitting for mount. The crevice 1 for fitting of the cell pack 10 and the crevice 1 for fitting of the cell pack 20 are both located from the tooth backs 11 and 21 of the cell packs 10 and 20 in a fixed location, and the crevice 2 for fitting of the cell pack 10 and the crevice 2 for fitting of the cell pack 20 are both located from the fitting side of a field radio 70 in a fixed location.

[0017] Although stability of a fitting condition is aimed at in charge with a desk battery charger without a lock device by contact on a battery-charger case and the tooth

back of a cell pack, positioning in that case must make the criteria of positioning a fitting side with the body of a field radio with the battery charger for mount on the basis of a cell pack tooth back.

[0018]

[Effect of the Invention] As explained above, although the part with a common thickness dimension was made from the conventional cell pack at the cell pack tooth back and the crevice for battery-charger fitting was used in common, the thickness dimension intersection of the tooth back which can serve as a neck on configuration enlargement or the design of a cell pack in the cell pack of this invention in the case of fitting to a battery charger can be made unnecessary, and it can consider as the structure where a limit is not received in an appearance configuration.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing one example of the cell pack of this invention.

[Drawing 2] It is the sectional view showing the condition of having equipped the desk battery charger with the cell pack of this invention.

[Drawing 3] It is the sectional view showing the condition of having equipped the battery charger for mount with the cell pack of this invention.

[Drawing 4] It is drawing showing the location of the crevice for desk battery-charger fitting of the cell pack of this invention, and the crevice for battery-charger fitting for mount.

[Drawing 5] It is the perspective view showing one example of the conventional cell pack.

[Drawing 6] It is the sectional view showing the condition of having equipped the desk battery charger with the conventional cell pack.

[Drawing 7] It is the sectional view showing the condition of having equipped the battery charger for mount with the conventional cell pack.

[Drawing 8] It is drawing showing the location of the crevice for battery-charger fitting of the conventional cell pack.

[Description of Notations]

1, 2, 3 Crevice for fitting

4 Charge Terminal

10, 20, 30, 40 Cell pack

11, 21, 31, 41, 42 Tooth back

50 Desk Battery-Charger Case

51 61 Heights for fitting

52 62 Heights

60 Battery-Charger Case for Mount

70 Field Radio

(19)日本国特許庁 (JP)

(12) 公開特許公報 (A)

(11)特許出願公開番号

特開平9-320642

(43)公開日 平成9年(1997)12月12日

(51)Int.Cl. ⁶	識別記号	府内整理番号	F I	技術表示箇所
H 01 M 10/46			H 01 M 10/46	
2/10			2/10	E
H 02 J 7/00	301		H 02 J 7/00	J 301 A

審査請求 有 請求項の数4 O.L (全4頁)

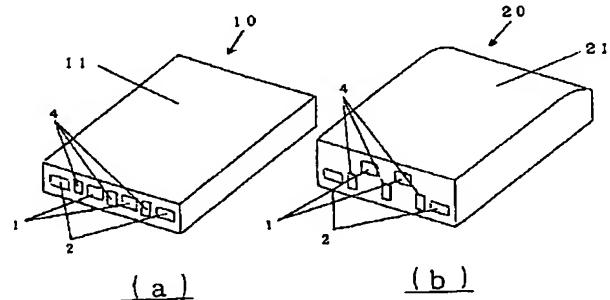
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(54)【発明の名称】 電池パック

(57)【要約】

【課題】 電池パックを固定するための厚み寸法の共通面をなくし、外観形状に制限を受けない構造を提供する。

【解決手段】 厚み寸法の異なる電池パックにおいて、卓上充電器と車載用充電器で共通に使用していた嵌合時の位置決め用凹部を、卓上充電器の嵌合用凹部1と車載用充電器の嵌合用凹部2とに別々に設けることにより、厚み寸法の共通な面をなくす。



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【特許請求の範囲】

【請求項1】電池パックの厚みによって嵌合方法の異なる2種類の充電器により充電可能な構造を有する携帯無線機用の電池パックにおいて、

前記電池パックの充電器嵌合面に、基準面の異なる2種類の嵌合用凹部を有することを特徴とする電池パック。

【請求項2】前記嵌合用凹部が、厚みの異なる電池パックの携帯無線機本体嵌合面から同一な位置と充電器に接する電池パック背面から同一な位置にあることを特徴とする請求項1記載の電池パック。

【請求項3】2種類の充電器が卓上充電器および車載用充電器であることを特徴とする請求項1または2記載の電池パック。

【請求項4】厚み寸法の異なる電池パックにおいて、卓上充電器の電池パック嵌合用凸部と嵌合し、かつ充電器に接する電池パック背面からの距離が等しい第1の充電器嵌合用凹部と、車載用充電器の電池パック嵌合用凸部と嵌合し、かつ電池パックの携帯無線機本体嵌合面からの距離が等しい第2の充電器嵌合用凹部とを有することを特徴とする電池パック。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、電池パックに関し、特に厚みによって嵌合方法の異なる2種類の充電器により充電可能な構造を有する電池パックに関する。

【0002】

【従来の技術】従来の携帯無線機用の電池パックは、携帯無線機嵌合状態および電池パック単品状態により充電可能であり、かつ電池パックの背面で充電器に接して充電時の位置決めをする構造の卓上充電器と、無線機本体に嵌合状態にて充電可能であり、かつ無線機本体と充電器がロックする構造の車載用充電器を使用する場合、厚みの異なる電池パックを充電させるには電池パックの背面に厚み寸法の共通な面を設ける必要があつたため、電池パックの外観形状に制限を受けていた。

【0003】図5は、従来のこの種の電池パックの一実施例を示す斜視図であり、図5(a)は、厚み寸法の小さい電池パック30を示し、図5(b)は、厚み寸法の大きい電池パック40を示している。これらの電池パックの充電器嵌合面には、充電器嵌合用凹部3が設けられており、嵌合用凹部3と同一面上に充電端子4が設けられている。また、電池パック40の背面41には、電池パック30の背面31と厚み寸法の共通な背面42が設けられている。

【0004】図6は、従来の電池パックと卓上充電器との嵌合状態の一実施例を示す断面図であり、卓上充電器ケース50に電池パック30、40が嵌合されている。この時、電池パックは、背面31、41により卓上充電器との位置決めを行っており、電池パック40には、卓上充電器ケース50との嵌合状態を安定させるために、

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電池パック30と厚み寸法の共通な面である背面42が必要となり、また充電器には、背面42を支えるための凸部52と、充電器嵌合用凹部3と嵌合する電池パック嵌合用凸部51とが必要となる。

【0005】図7は、従来の電池パックと車載用充電器との嵌合状態の一実施例を示す断面図であり、携帯無線機70に装着された状態の電池パック30、40が嵌合されている。この時、携帯無線機70と車載用充電器ケース60がロックする構造となっている。

【0006】図8は、電池パック30、40の充電器嵌合用凹部3の位置を示す図である。電池パック30の嵌合用凹部3と電池パック40の嵌合用凹部3は、共に携帯無線機70との嵌合面から一定の位置にあり、凸部52との接触面から一定の位置にある。これは、充電器嵌合用凹部3を卓上充電器ケース50と車載用充電器ケース60との嵌合において共通に使用しているためであり、この結果、電気パック30、40で厚み寸法の共通な背面42が必要となっている。

【0007】

【発明が解決しようとする課題】上述した従来の、厚み寸法の異なる携帯無線機用電池パック30、40を卓上充電器50および車載用充電器60に嵌合する方法では、電池パックと充電器を固定するために、必ず電池パックの厚み寸法が共通な背面42が必要となり、外観形状に制限を受けていた。

【0008】本発明の目的は、厚み寸法の異なる電池パックを卓上充電器および車載用充電器に嵌合させる構成において、電池パックを固定するための厚み寸法の共通な面をなくし、外観形状に制限を受けない構造を提供することにある。

【0009】

【課題を解決するための手段】本発明の電池パックは、卓上充電器の電池パック嵌合用凸部と車載用充電器の電池パック嵌合用凸部に嵌合する電池パックの充電器嵌合用凹部を共通に使用せず、卓上充電器用と車載用充電器用それぞれに別の充電器嵌合用凹部を設けている。

【0010】より具体的には、厚み寸法の異なる電池パックにおいて、卓上充電器の電池パック嵌合用凸部と嵌合し、かつ充電器と接する電池パック背面からの距離が等しい第1の充電器嵌合用凹部と、車載用充電器の電池パック嵌合用凸部と嵌合し、かつ電池パックの携帯無線機本体嵌合面からの距離が等しい第2の充電器嵌合用凹部を有している。

【0011】このため本発明の電池パックは、電池パックと充電器を固定するための電池パック厚み寸法共通背面を設けずに、電池パックと充電器を固定することが可能である。

【0012】

【発明の実施の形態】次に、本発明の実施の形態について図面を参照して詳細に説明する。

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【0013】図1は、本発明の電池パックの一実施例を示す斜視図である。図1(a)は、厚み寸法の小さい電池パック10を示し、図1(b)は、厚み寸法の大きい電池パック20を示している。これらの電池パックの充電器嵌合面には、卓上充電器嵌合用凹部1と車載用充電器嵌合用凹部2とが別々に設けられており、卓上充電器嵌合用凹部1および車載用充電器嵌合用凹部2と同一面上に充電端子4が設けられている。

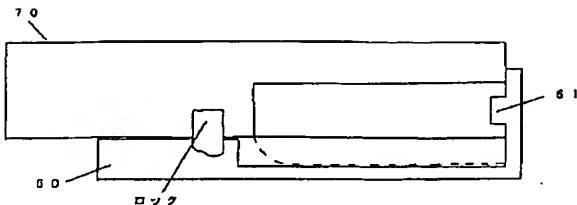
【0014】図2は、本発明の電池パックと卓上充電器との嵌合状態の一実施例を示す断面図であり、卓上充電器ケース50に電池パック10, 20が嵌合されている。この時、卓上充電器の電池パック嵌合用凸部51と、電池パック10, 20の背面11, 21から同距離にある卓上充電器嵌合用凹部1とが嵌合状態する構造となっており、かつ、電池パック10の背面11と電池パック20の背面21が卓上充電器ケース50と接することにより、卓上充電器との位置決めおよび嵌合状態の安定を図っている。

【0015】図3は、本発明の電池パックと車載用充電器との嵌合状態の一実施例を示す断面図であり、携帯無線機70に装着された状態の電池パック30, 40が嵌合されている。この時、車載用充電器の電池パック嵌合用凸部61と、携帯無線機70の嵌合面から電池パック10, 20で一定である車載用充電器嵌合用凹部2とが嵌合することにより位置決めし、かつ携帯無線機70と車載用充電器ケース60がロックする構造となっている。

【0016】図4は、電池パック10, 20の卓上充電器用凹部1と車載用充電器嵌合用凹部2の位置を示す図である。電池パック10の嵌合用凹部1は、共に電池パック10, 20の背面11, 21から一定の位置にあり、電池パック10の嵌合用凹部2と電池パック20の嵌合用凹部2は、共に携帯無線機70の嵌合面から一定の位置にある。

【0017】ロック機構のない卓上充電器での充電では、充電器ケースと電池パック背面の接触により嵌合状態の安定を図るが、その際の位置決めは、電池パック背面を基準としなければならず、車載用充電器では、位置

【図3】



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決めの基準を携帯無線機本体との嵌合面としなければならない。

【0018】

【発明の効果】以上説明したように従来の電池パックでは、電池パック背面に厚み寸法の共通な部分を作り、充電器嵌合用凹部を共通に使用していたが、本発明の電池パックでは、充電器への嵌合の際に、電池パックの形状大型化またはデザイン上のネックとなり得る背面の厚み寸法共通部分を不要とし、外観形状に制限を受けない構造とすることができます。

【図面の簡単な説明】

【図1】本発明の電池パックの一実施例を示す斜視図である。

【図2】本発明の電池パックを卓上充電器に装着した状態を示す断面図である。

【図3】本発明の電池パックを車載用充電器に装着した状態を示す断面図である。

【図4】本発明の電池パックの卓上充電器嵌合用凹部と車載用充電器嵌合用凹部の位置を示す図である。

【図5】従来の電池パックの一実施例を示す斜視図である。

【図6】従来の電池パックを卓上充電器に装着した状態を示す断面図である。

【図7】従来の電池パックを車載用充電器に装着した状態を示す断面図である。

【図8】従来の電池パックの充電器嵌合用凹部の位置を示す図である。

【符号の説明】

1, 2, 3 嵌合用凹部

4 充電端子

10, 20, 30, 40 電池パック

11, 21, 31, 41, 42 背面

50 卓上充電器ケース

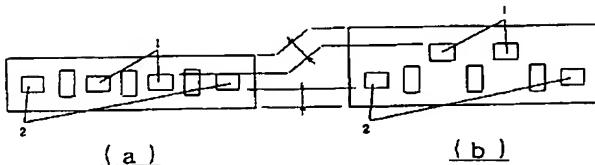
51, 61 嵌合用凸部

52, 62 凸部

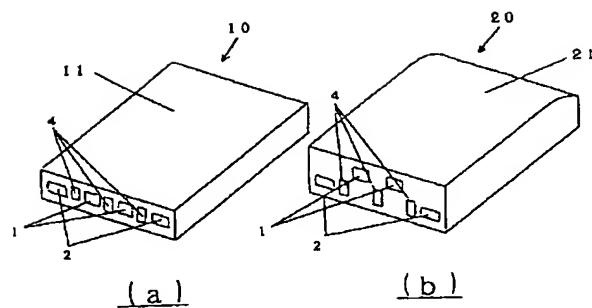
60 車載用充電器ケース

70 携帯無線機

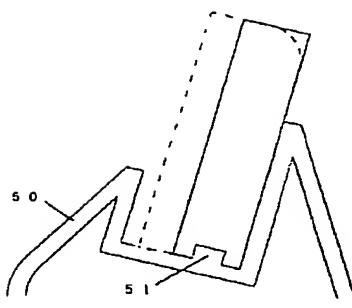
【図4】



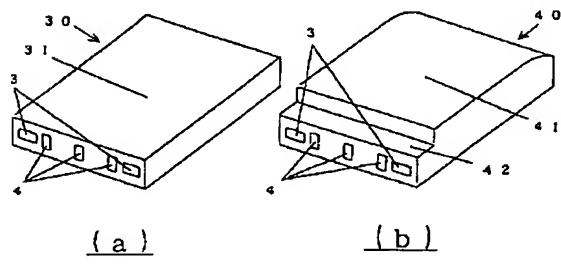
【図1】



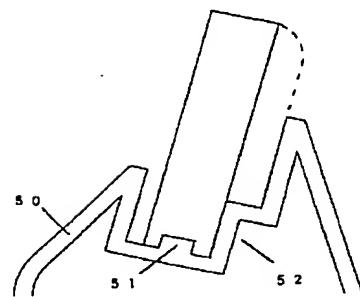
【図2】



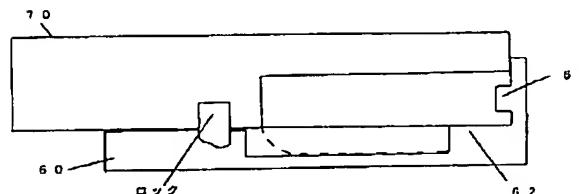
【図5】



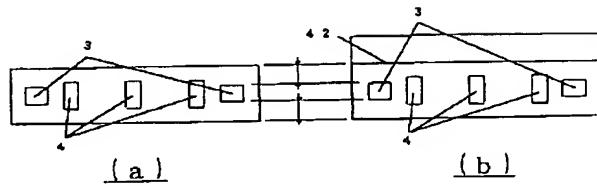
【図6】



【図7】



【図8】



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